

-12-

## CLAIMS:

1. A blade for use in cutting a grooved face of a drive belt, the blade being removably insertable into a rotary tool body having a central bore, axially spaced apart radially extending side faces, and an outer peripheral portion configured to receive and hold a plurality of blades peripherally spaced about the peripheral portion, the blade being generally flat to have a front side, a back side, a cutting edge to extend outwardly from the tool body, a base edge opposite to the cutting edge to extend into the tool body, and opposite first and second side edges between the cutting edge and base edge.
2. The blade of claim 1, wherein the blade has three spaced apart locating protuberances to engage and locate the blade on the tool body, at least one protuberance being on the base edge and at least one protuberance being on one of the side edges.
3. The blade of claim 2, wherein two protuberances are spaced apart on the base edge.
4. The blade of claim 2, wherein a notch is formed on the side edge with the protuberance.
5. The blade of claim 1, further comprising a wedge configured to engage and hold the blade against the outer peripheral portion of the tool body.
6. The blade of claim 5, wherein the blade has at least one hole formed therein and the wedge has at least one projection formed to extend into the hole.
7. The blade of claim 1, with two additional blades to provide a set of three peripherally spaced blades on the peripheral portion of the tool body and a plurality of such blade sets to be spaced about the periphery of the tool body.
8. The blades of claim 7, with the three blades of each blade set comprising a left-hand cutter blade, a right-hand cutter blade, and a raker blade, the left-hand and right-hand cutter blades each having its cutting edge formed with a plurality of spaced apart cutting teeth to form grooves in the drive belt, and the raker blade having an edge to form flats between the grooves.

-13-

9. The blades of claim 8, wherein the left-hand cutter blade and the right-hand cutter blade are mountable on the tool body such that each left-hand cutter blade and each right-hand cutter blade defines a shear angle relative to a plane which includes the axis of the tool body and extends radially outwardly from the axis.
- 5 10. The blades of claim 9, wherein the shear angle is approximately 15 degrees.
11. The blades of claim 9, wherein the shear angle is in the range of 10-20 degrees.
12. The blades of claim 9, wherein the left-hand cutter blade shear  
10 angle is opposite the right-hand cutter blade shear angle.
13. The blades of claim 8, wherein the left-hand and right-hand cutter blades are mountable on the tool body such that they each define a substantially zero-degree hook angle relative to a tool body radial plane which includes the axis of the tool body.
- 15 14. The blades of claim 8, wherein the raker blade of each set is mountable on the tool body such that it defines a hook angle relative to a tool body radial plane which includes the axis of the tool body, the hook angle being in the range of 10-30 degrees.
15. The blades of claim 14, wherein the hook angle is  
20 approximately 15 degrees.
16. The blades of claim 14, wherein each raker blade hook angle is positive such that the cutting edge of the raker blade is presented to the drive belt prior to any other surface of the raker blade.
17. The blade of claim 1, wherein the blade is positioned relative to  
25 the side edge with a positioning screw.
18. The blade of claim 17, further comprising a set screw configured to provide a backstop for the positioning screw.
19. The blade of claim 17, wherein a notch is formed in the blade, the notch being configured to receive the head of the positioning screw.
- 30 20. The blade of claim 1, with an additional blade to provide a set of two peripherally spaced blades on the peripheral portion of the tool body and a plurality of such blade sets to be spaced about the periphery of the tool body.

-14-

21. The blades of claim 20, with the two blades of each blade set comprising a left-hand cutter blade and a right-hand cutter blade, the left-hand and right-hand cutter blades each having its cutting edge formed with a plurality of spaced apart cutting teeth to form grooves in the drive belt.

5 22. The blades of claim 21, wherein the left-hand cutter blade and the right-hand cutter blade are mountable on the tool body such that each left-hand cutter blade and each right-hand cutter blade defines a shear angle relative to a plane which includes the axis of the tool body and extends radially outwardly from the axis.

10 23. A plurality of sets of drive belt grooved surface cutter blades for removable insertion into a rotary tool body having an outer peripheral portion configured to receive and hold the blades, each set of blades comprising a left-hand cutter blade and a right-hand cutter blade, the left-hand and right-hand cutter blades each having a cutting edge formed with a plurality of spaced apart cutting teeth to form grooves in a drive belt, the teeth on the left-hand blade forming the left sides of  
15 the v-grooves and the teeth on the right-hand blade forming the right sides of the v-grooves.

24. The blades of claim 23, wherein the left-hand cutter blade and the right-hand cutter blade are mountable on the tool body such that each left-hand cutter blade and right-hand cutter blade defines a shear angle relative to a tool body  
20 radial plane which includes the axis of the tool body.

25. The blades of claim 24, wherein the shear angle is in the range of 10-20 degrees.

26. The blades of claim 24, wherein the left-hand cutter blade shear angle is opposite the right-hand cutter blade shear angle.

25 27. The blades of claim 23, wherein the left-hand and right-hand cutter blades are mounted on the tool body such that they each define a substantially zero-degree hook angle relative to a tool body radial plane which includes the axis of the tool body.

30 28. The blades of claim 23, wherein each of the teeth on the left-hand blades and right-hand blades is configured to form a side of the v-groove and at least a portion of the belt O.D. flat between that groove side and the next adjacent groove.

-15-

29. The blades of claim 23, wherein each of the blade teeth is formed to cut the entire O.D. flat between that groove side and the adjacent groove.

30. The blades of claim 23, comprising a raker blade for each set of blades to be mounted on the tool body to define a hook angle relative to a tool body radial plane which includes the axis of the tool body, the hook angle being in the range of 10-30 degrees, the raker blade of each set of blades forming the belt O.D. flats between the grooves.

31. The blades of claim 30, wherein each raker blade hook angle is positive such that the cutting edge of the raker blade is presented to the drive belt prior to any other surface of the raker blade.

32. The blades of claim 23, wherein each blade has at least one aperture formed therein for receiving a blade-retaining projections.

33. The blades of claim 23, wherein each blade is formed to include three spaced apart locating protuberances.

34. The blades of claim 33, wherein each blade has a cutting edge, a base edge, and two side edges, the base edge having two locating protuberances and one of the side edges having the third locating protuberance.

35. The blades of claim 34, wherein one of the side edges is formed to define a notch, the notch being configured to receive a positioning screw.

36. The blades of claim 23, wherein each blade has at least one aperture formed therein and comprising, for each blade, a blade-retaining wedge having at least one protrusion for mating with the at least one aperture.

37. The blades of claim 23, wherein each blade is generally flat and has a front side and a back side, the cutting edge of each blade being formed to have a trailing surface that is at an angle relative to the front side.

38. The blades of claim 37, wherein the angle is approximately 40 degrees.

39. A plurality of cutting tools to be ganged together on a common arbor defining an axis and a plurality of cutter blades removably coupled to each tool, each tool comprising a tool body having a central bore for receiving the arbor, radially extending side faces abutting side faces of adjacent tool bodies when they are on the arbor, and an outer peripheral portion to which the cutter blades are removably coupled, the cutter blades being arranged in sets of blades with a plurality of blade

-16-

sets peripherally spaced about each tool body, each tool body having for each set of blades coupled thereto at least one recess in one side face and at least one protuberance extending axially from at least one side face, the protuberances on the tool bodies engaging into recesses on adjacent tool bodies when the tools are ganged  
5 on the arbor.

40. The cutting tools of claim 39, comprising for each blade a positioning screw to position the blade relative to the cutting tool to which it is coupled.

41. The cutting tools of claim 40, wherein the positioning screw  
10 mates with a screw hole formed in a side face of the cutting tool.

42. The cutting tools of claim 41, wherein the screw hole is formed in a non-recessed side face portion.

43. The cutting tools of claim 39, further comprising an end tool, the end tool having a plurality of end cutter blades removably coupled thereto.

44. In combination, a plurality of cutting tool bodies to be ganged  
15 together on a common arbor defining an axis with the cutter blades of claim 23 removably coupled to each tool body, each tool body having a central bore for receiving the arbor and radially extending side faces abutting side faces of adjacent tool bodies when they are on the arbor, the cutter blades being arranged in sets of  
20 blades with a plurality of blade sets peripherally spaced about each tool body, each tool body having at least one recess in one side face and at least one protuberance extending axially from at least one side face, the protuberances on the tool bodies engaging into recesses on adjacent tool bodies when the tools are ganged on the arbor.

45. The cutting tools of claim 44, wherein the end cutter blades  
25 define a width that is greater than a width defined by the cutter blades of the tools.

46. The cutting tools of claim 44, wherein the end cutter blades are configured to carve two cut grooves in a drive belt surface.

47. The blades of claim 23 wherein each of the left-hand cutter  
30 blades has a side edge and its plurality of spaced apart cutting teeth each has a right side viewed from the back of the blade having a tapered beveled surfaces relative to the side edge of the blade and wherein each of the right-hand cutter blades has a side edge and its plurality of spaced apart cutting teeth each has a left side viewed from the

-17-

back of the blade having a tapered beveled surface relative to the side edge of the blade.

48. The blades of claim 47 in which the tapered bevel surfaces are approximately 30 degrees relative to the side edge of the blade.

5 49. The blades of claim 8 wherein each of the left-hand cutter blades is found with its plurality of cutting teeth each having a right side viewed from the back of the blade which is beveled and wherein each of the right-hand cutter blades is formed with each of its plurality of cutting teeth each having a left side viewed from the back of the blade which is beveled.

10 50. The blades of claim 49 wherein the right side of each cutting tooth on the left-hand cutter blade is beveled at approximately 30 degrees and wherein the left side of each cutting tooth on the right-hand cutter blade is beveled at approximately 30 degrees.

15 51. The blade of claim 1 wherein the cutting edge is formed with a plurality of teeth to cut side edges of grooves in a drive belt, and in combination with the blade, a raker blade to be inserted into the rotary tool body against the blade formed with the plurality of teeth, the raker blade forming flats between the grooves.

20 52. The blades of claim 51 comprising a wedge to engage and hold the blade with teeth and the associated raker blade against the other peripheral portion of the tool body.

53. The blades of claim 23 comprising, for each left-hand cutter blade and each right-hand cutter blade, a raker blade to be inserted into the outer peripheral portion of the rotary tool against its associated cutter blade, the raker blades to form the flats between the grooves.

25 54. The blades of claims 53 comprising a wedge to hold each raker blade against its associated cutter blade in the rotary tool.